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New Observations of the Peregrine Falcon (*Falco peregrinus*) in Peru

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The Peregrine Falcon (*Falco peregrinus*) is a widespread terrestrial species and nests on every major landmass except Antarctica, New Zealand, and Iceland (Cade 1982). Large numbers of the subspecies *tundrius* and *anatum* of the North American arctic winter in South America (Ambrose and Riddle 1988, Cade et al. 1988, Henny et al. 1996, Fuller et al. 1998), yet most of this continent has long seemed to be virtually devoid of any nesting peregrines. With the subspecies *cassini,* the peregrine is known to be widespread only in the southern tip of South America in Chilean and Argentine Patagonia (McNutt et al. 1988).

During the last few decades, nesting peregrines have been found or suspected further north. To date in Peru, there are six to seven suspected or confirmed breeding pairs at inland locations mentioned in the literature. A pair was observed on 10 September 1937 near Yauli (Department of Huancavelica) at an elevation of 3350 m (Morrison 1939) in the Andean interior. Gochfeld (1977) reported the observations from 1972 of an adult pair near San Ramon (Department of Junin) at an elevation of about 1800 m in August and September and of a single adult male near La Merced in the same department on 6 August. Both sites are at the eastern Andean slope toward the Amazon basin. Ellis and Glinski (1980) recorded an adult pair at a probable eyrie at an elevation of ca. 1850 m in the western Andean foothills near Tacna (Department of Tacna) on 25 March 1979. From 1980–82, Schoonmaker et al. (1985) confirmed three breeding pairs at elevations of 600–1200 m in the western Andean foothills near Olmos (Department of Lambayeque). In 1979, breeding was confirmed near Guayllabamba, Ecuador in an intermontane valley at an elevation of 2400 m (Jenny et al. 1981, Hilgert 1988). Nothing is known about the breeding status of peregrines in Colombia or Venezuela (McNutt et al. 1988).

During three trips to South America in February–May 1996 and 2001, and in January 2002, I saw peregrines at nine sites in central and southern Peru. Some of these presumably represented local breeding birds and thus are notable. In addition, I summarize some recent observations collected by other ornithologists in the same areas. One aim of the article is to reiterate the suggestion by McNutt et al. (1988) that peregrines may be much more widespread in the central and northern Andes than hitherto recorded.

Methods

Three peregrine subspecies can be observed in South America, the locally-nesting *cassini* and the northern migrants *tundrius* and *anatum.* In the field they cannot be distinguished for sure because character distributions overlap. Here, I describe 'typical' birds of each subspecies and note timing and behavioral criteria that may be used to distinguish northern migrants from resident breeders.

Adult *cassini* show a striking color dimorphism. In Patagonia, a rare and very pale morph occurs which was earlier thought to represent a different species, the Pallid Falcon ("*Falco kreyenborgi,*" Ellis and Peres G. 1983). The more common morph of *cassini* is usually described as a dark subspecies with a broad moustache, and a rusty wash and strong bars on the underside (Ellis 1985, White and Boyce 1988, Ratcliffe 1993). Even in the normal *cassini* morph, however, there is considerable morphological variation across the entire range. In central Peru, Gochfeld (1977) saw an adult bird with "whitish underparts and with only a trace of barring," which—based on the August date—could only represent *cassini.* Ellis (1985), in Argentina, also saw pale normal *cassini* birds without any colorful wash on the breast or belly. White and Boyce (1988) note that birds from central and northern Chile are generally paler overall. Some falconer birds of Peruvian origin that were shown to me in Lima had a broad moustache and were only lightly barred on a buff-rusty underside. They reminded me of the *Falco p. pelegrinoides* I had seen in Israel.

Average adult *tundrius* peregrines from the tundra are overall very pale, with often a pure white underside and sparse and thin (and sometimes almost absent) markings, a narrow moustache, and a white spot above the beak (White 1968). Typical migrant *anatum* from the North American taiga, in contrast, have broader moustaches and more extensive markings on the underside, which may have a rusty wash (White 1968).

Departure dates of wintering peregrines in South America can be estimated from telemetry data on the mean duration of migration, and from the arrival times on the taiga and tundra breeding grounds as reported in various studies in Cade et al. (1988). Northbound migration averaged 42 d (Fuller et al. 1998), so mean departure dates may be estimated at late March–early April (R.W. Nelson pers. comm.). Based on the only published account of nesting pairs in northern Peru (Schoonmaker et al. 1985), three pairs started egg-laying from mid-March to the end of May. The peregrines at Guayllabamba, Ecuador started egg-laying anytime between June–December (N = 5 breeding seasons; Hilgert 1988). Thus,

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migrants and breeders in Peru may overlap widely. Any peregrine seen after late March–mid April is likely a resident, while birds before that date will be either a migrant or a resident.

Sometimes peregrine pairs away from any breeding site have been observed in South America and presumably were northern migrants (e.g., observations in Peru, O. Beingolea pers. comm.). However, observations of pairs are more likely to refer to resident breeders. Also, migrants would be less likely to hunt jointly in pairs and tend to be more silent compared to resident breeders. Migrants will be especially unlikely to give the "creaking call," which is usually heard at nesting sites when birds of opposite sexes meet (Ratcliffe 1993).

My observations in 1996 were made with 10× binoculars and were incidental to other travels. Some of the observations in 2001 and 2002 resulted from efforts to relocate birds at sites discovered years earlier or to survey areas that had appeared to be promising (especially in the Valle Sagrado). They were made with 10× binoculars and a 20–45× spotting scope. The birds in Lima were observed with the unaided eye. The minimal ranges at which I saw almost all birds ranged between 20–1000 m and the light conditions were usually excellent. Sexing and aging, where possible, was based on 22 years' experience with several thousand individual peregrines observed in 14 countries. For each observation, I give as much detail (regarding sex, age, and plumage) as was seen.

RESULTS

Twenty-eight peregrine falcons were observed at nine locations in central and southern Peru in February–May 1996 and 2001, and in January 2002. Five birds were seen in Lima, 12 at or near sea cliffs at three coastal sites, eight at cliffs at three inland sites, and three birds were observed at inland sites away from any cliffs. Four pairs were observed at or near suitable nesting cliffs, while one pair was seen away from cliffs. Locations where I saw birds, as well as observations from the literature or from other observers, that are suspected to represent breeding birds are shown in Figure 1.

(1) Lima (12°06′S, 77°00′W): Several observations in the central parts of the city of birds that could not be aged. On 15 March 2001, two peregrines perching on buildings and hunting in Miraflores/Lima, and one peregrine with prey at the Plaza de Armas in the city center. On 9 April 2001, one peregrine hunting from the tall building beside the Sheraton hotel in the city center. On 19 May 2001, one peregrine with a freshly-caught pigeon in the city center. In addition, on 22 May 2001, I came across a stuffed adult male in a shop window in the city center. The shop clerks claimed that "somebody from the street" had given them the bird. The stuffed bird seemed unlikely to be more than a few years old. It was hardly marked on the underside, so was probably not *anatum,* but had a warm buff tinge, and thus, probably was not *tundrius* either.

(2) Lagunillas Beach, Paracas National Park, Pisco (13°54′S, 76°18′W): 3–4 February 1996, one adult pair watched for a total of 5 hr at a sea cliff between Playa de Lagunillas and Playa de Yumaque. These birds seemed to be paired and mostly stayed together and several times also hunted jointly. Although both birds were pale beneath, the female was strongly barred on the belly and thus unlikely a *tundrius* bird. On 24 March 2001, one adult peregrine was seen at the same cliff. Ventrally it was only lightly marked on a warm, buff background. The sea cliff was 50–100 m high and, in several places, had conspicuous whitewash typical of a nesting cliff and suggestive of prolonged occupancy. On 26 March 2001, I saw one adult peregrine perching at another sea cliff of similar size ca. 2 km west of Lagunillas Beach.

(3) Laguna Grande, Paracas National Park, Pisco (14°10′S, 76°16′W): 28 March 2001, one adult pair hunted jointly over the fishing village of Laguna Grande and also perched on a hilltop, less than 1 km from the closest sea cliffs, which are well over 100 m in height in places Both birds had strong moustaches and their rusty-buff undersides were only lightly marked, which made them unlikely to be either *tundrius* or *anatum.* On 29 March 2001, one peregrine perched in a sea cliff 1 km northwest of the village, and one adult peregrine flew off from a rocky outcrop on the east side of Mt. Wilson (ca. 2 km south of the village).

(4) Lighthouse south of Chala (15°52′S, 74°11′W): On 7 February 1996, one adult female south of the lighthouse about 2 km south of the village of Chala. A fresh plucking and a few pellets were found on top of the cliff from where I flushed the bird. On 1 April 2001, one peregrine flew by and one adult peregrine perched and also called (the "wailing call" noted by Ratcliffe 1993) on a hilltop in the same area. On 2 April 2001, one adult peregrine perched, with a white background on the underside, but heavily barred and with a broad moustache, so probably not a *tundrius* migrant. The cliffs in this area are mostly <50 m high.

(5) Cañon de Colca (15°38′S, 71°48′W): Several observations at the large (>100 m) inland cliff crossed by a tunnel between the villages of Maca and Pinchollo at an elevation of 3250 m. On 12 February 1996, one adult peregrine flew in front of the cliff. It had a broad moustache and was dark on the upperside and rusty below On 6–7 April 2001, an adult male peregrine was observed for several hours, perched and flying along the cliff. It had a very broad moustache, almost a dark facial mask, and buffish underparts. On both days, the "creaking call" (Ratcliffe 1993) was heard, indicating the presence of a second peregrine, presumably the female, which was not seen. The cliff had extensive whitewash in several places, suggesting prolonged occupancy. It overlooks the Colca river in a rich agricultural valley and thus appears a classic peregrine haunt.

(6) City of Arequipa (16°24′S, 71°33′W): 12 April 2001, one female seen stooping in the city center (elevation 2300 m).

(7) Machu Picchu (13°08′S, 72°34′W): 17 April 2001,

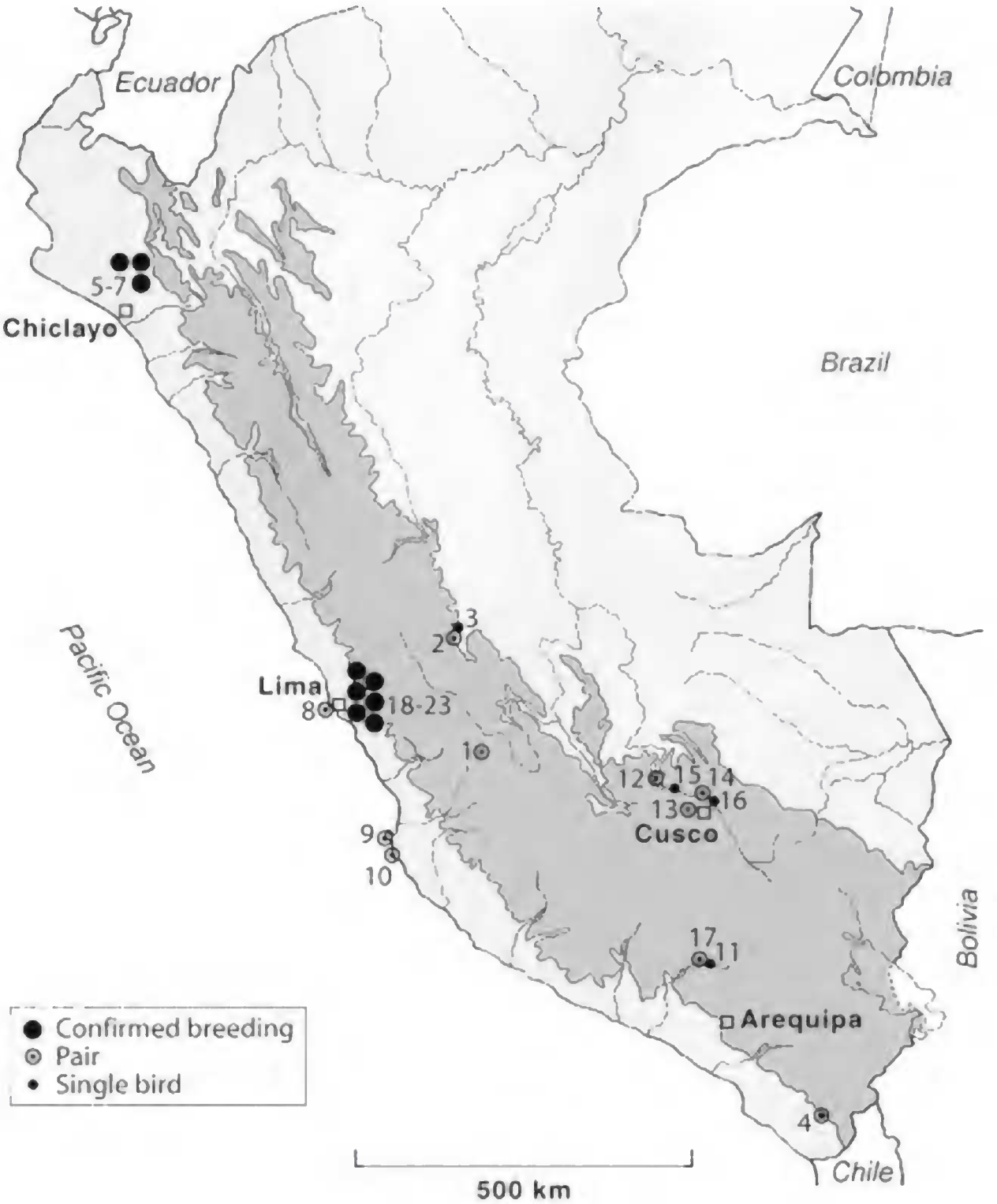

Figure 1. Distribution of the Peregrine Falcon (*Falco peregrinus*) in Peru. The locations of observations referring to known or suspected breeding pairs are shown. The dark shaded area marks Andean regions above 2000 m elevation To its west is the coastal strip, and to its east, the Amazon forest.

Numbers mark the locations in order of their appearance in the text: 1 (Yauli; Morrison 1939), 2 (San Ramon; Gochfeld 1977), 3 (La Merced; Gochfeld 1977), 4 (Tacna; Ellis and Glinski 1980), 5–7 (Olmos; Schoonmaker et al. 1985), 8 (Lima), 9 (Lagunillas), 10 (Laguna Grande), 11 (Cañon de Colca), 12 (Machu Picchu), 13 (Cusco), 14 (Calca-Lamay), 15 (Chilca-Guayllabamba; D. Michelat, pers. comm.), 16 (Pisac; D. Michelat pers. comm.), 17 (Cabanaconde-Tapay; F. Schmitt, pers. comm.), 18–23 (Lima and surroundings; O. Beingolea, pers. comm.).

one adult pair with the tiercel attacking an intruding immature tiercel, at the east-facing cliff of Huayna Picchu, the little sugar-loaf mountain overlooking that world-famous ancient Inca city at an elevation of ca. 2400 m. The pair had broad moustaches and generally dark plumage (including strong markings below), but no pronounced buffness on the underside. They frequently gave the wailing and the creaking calls when together, and the tiercel the cacking call (Ratcliffe 1993) when chasing away the intruder. The two adults were clearly paired, engaged in courtship flights and perched on the cliff, although not close together.

(8) Inca site of Sacsayhuaman at Cusco (13°29′S, 71°57′W): 18 April 2001, one adult pair was seen at an elevation of ca. 3400 m, soaring at this location devoid of any cliffs. They were in a "playful mood" and repeatedly made mock attacks on each other. Both birds appeared fairly dark on the underside.

(9) Valle Sagrado between Calca and Lamay (13°21′S, 71°54′W): 19 April 2001, one adult pair seen at the inland cliff at kilometer post 48 on the right side of the river valley at an elevation of ca. 3000 m. On 20 April 2001, one adult bird perched in the same cliff. On 16 January 2002, I saw one adult hunting and then perched in the cliff. This site is located in the broad valley of the Urubamba river, which has rich agricultural land at the bottom and excellent cliffs available almost continuously for many kilometers. The valley here looks like prime peregrine habitat.

(10) Valle Sagrado between Ollantaytambo and Pachar (13°18′S, 72°12′W): 18 February 1996, I caught a glimpse of a large falcon stooping east of the village of Ollantaytambo at an elevation of ca. 2800 m. On 21–22 April 2001, however, during 5 hr of observation, no peregrines were observed. On 14 January 2002, during 1 hr nothing seen either. The Urubamba valley at this site looks excellent for nesting peregrines. It is only slightly narrower than upriver at Calca, and again with abundant huge cliffs.

DISCUSSION

It is well-known that the important migrant populations of *F. p. tundrius* and *anatum* from the tundra and taiga in North America distribute themselves throughout most Latin America during the northern winter (see Fig. 1 in Henny et al. 1996 and Fuller et al. 1998). Most of my February–May observations were made at a time when the northern migrants may overlap with nesting activities of local birds. Therefore, an obvious question is whether the reported observations concern migrants or instead locally breeding birds.

Based on the plumage and behavior criteria mentioned, some birds observed at the Paracas National Park and at Chala may have been northern migrants. In the austral summer, the greater Lima area has a relatively high density of peregrines of both migrant and local origin (O. Beingolea pers. comm.). Thus, nothing can be said of the birds observed in Lima and also of that in Arequipa, because not enough details were seen.

Based on date, behavior and plumage, the pairs at Lagunillas beach, Laguna Grande, Machu Picchu, Calca, and the repeated observations in the Cañon de Colca may have been locally-breeding birds. The pair at Cusco were probably not migrants either. These observations, thus, suggest up to six new peregrine pairs in Peru. This supports the suggestion by McNutt et al. (1988) that breeding peregrines are probably more widespread in the central Andes than hitherto recorded.

Further support for this hypothesis comes from recent sightings by other observers outside the period when northern migrants are present. In August 1995, D. Michelat (pers. comm.) saw single peregrines in the Cañon de Colca as well as at two widely separated sites in the Valle Sagrado; near Pisac and downriver from Ollantaytambo, between Chilca and Guayllabamba. On 27 July 2001, F. Schmitt (pers. comm.) watched a pair in a cliff overlooking the Rio Colca on its left side, between the villages of Tapay and Cabanaconde. The pair was calling frequently and perched on a heavily white-washed ledge that looked like an eyrie. This site is some 10 km downriver from the site where I watched peregrines in that valley, so this observation presumably indicated a separate territory rather than a very distant alternate nesting cliff. According to G. Engblom (pers. comm.) the Machu Picchu pair was already confirmed in 1999. Interestingly, S. Lovis (pers. comm.) thought he heard a peregrine calling in the background of a television documentary on Machu Picchu in the early 1990s! Finally, O. Beingolea (pers. comm.) found three cliff-nesting peregrine pairs close to the city of Lima in 1993 and by 2001 had located six nesting pairs, one of which was nesting on a building in urban Lima (O. Beingolea and C. White, unpubl data).

Collectively, these observations and the literature records mentioned above suggest the presence of at least 19–23 peregrine pairs in Peru (Fig. 1). Ten are located in the western foothills of the Andes (including Lima city), two on the coast, five to seven in the Andean highlands, and three to four on the eastern slopes of the Andes. These proportions may not be representative of the true distribution of breeding peregrines in Peru; instead they may reflect the accessibility of and ornithologists' activity in these regions, especially in the Lima area (O. Beingolea) and in northern Peru (Schoonmaker et al 1985). Breeding pairs have been suspected at very high elevations; 3250 m in the Cañon de Colca and possibly at similar elevations near Cusco (this study) and 3300 m at Yauli (Morrison 1939).

These findings raise the usual question of whether this greater frequency of reports reflects a real population increase or just additional observation intensity. Although it may be hard to imagine that the pairs at Machu Picchu and in Lima were overlooked for a long period, at present, nothing conclusive can be said. The observations reported here greatly increase the known geographic range of the peregrine in South America. Thus, I urge others to watch out for the peregrine in the countries of the central/northern Andes.

RESUMEN.—Entre febrero y mayo 1996 y 2001 y en enero 2002, observé 28 halcones peregrinos (*Falco peregrinus*) en un total de nueve sitios en el centro y el sur del Perú Cinco individuos fueron observados en Lima, 12 en o cerca de acantilados marítimos de tres sitios costeros, ocho en acantilados en tres sitios del interior del país Tres individuos fueron observados en el interior del país lejos de acantilados. Aunque algunos de esos halcones podrían haber sido individuos invernantes desde Norteamerica, detalles del plumaje y del comportamiento, sugieren la presencia de parejas anidando en dos sitios costeros (al sur de Pisco) y en el interior del país (Cañon de Colca, Machu Picchu, Calca y cerca de Cusco). Ade-

más, parejas anidando, seguras o probables, recién han sido descubiertas por otros ornitólogos en siete sitios más. Estas observaciones, junto a otras anteriormente mencionadas en la literatura, sugieren al menos 19 parejas de halcones peregrinos en el Perú. Esta especie podría estar más difundida en los países de los Andes centrales de lo que ha sido observado hasta ahora.

[Traducción de Maria Teresa Chu]

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